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Indian Standard

DIMENSIONS FOR PORCELAIN TRANSFORMER BUSHINGS FOR USE IN NORMAL AND LIGHTLY POLLUTED ATMOSPHERES

PART II 3.6 kV BUSHINGS

Section 2 Metal Parts

(First Revision)

First Reprint MAY 2002

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 5 *May* 1980

AMENDMENT NO. 1 JUNE 1982

TO

IS:3347(Part II/Sec 2)-1979 DIMENSIONS FOR PORCELAIN TRANSFORMER BUSHINGS FOR USE IN NORMAL AND LIGHTLY POLLUTED ATMOSPHERES

PART II 3.6 kV BUSHINGS

Section 2 Metal Parts

(First Revision)

Alteration

(*Page 6, clause 2.1, informal table, last entry*) Substitute the following for the existing entry:

Metal Part of Accessory	*For Bushing with Copper Stem*	*For Bushing with Aluminium Stem*
Connecting lug	For 1 000 and 2 000 A brass conforming to Grade 3 of IS:292-1961** or to IS:3488-1966† For 3 150 A copper chromium alloy	Aluminium alloy conforming to A-6-M designatio of IS:617-1975* or any other suitable alumin alloy to be agreed between the manufacturer and the purchas

Addendum

(*Page 6, foot-note with '§' mark*) — Add the following new foot-note after '¶' mark:

'**Specification for brass ingots and castings (*revise*)

(ETDC 3)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 2 APRIL 1987
TO
IS : 3347 (Part 2 Sec 2)-1979 DIMENSIONS FOR PORCELAIN TRANSFORMER BUSHINGS FOR USE IN NORMAL AND LIGHTLY POLLUTED ATMOSPHERES

PART 2 3·6 kV BUSHINGS

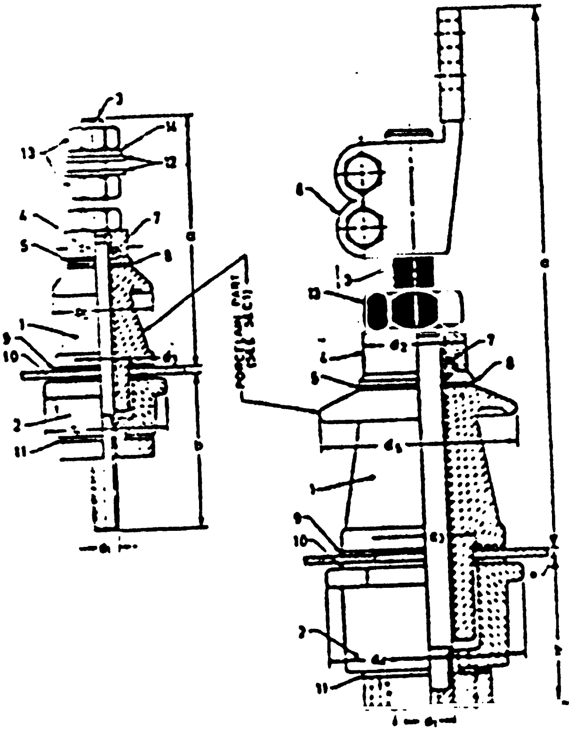
Section 2 Metal Parts

(First Revision)

(*Page* 17, *Fig.* 13, *informal table, column headings of col* 2 to 19) — Substitute the following for the existing column headings:

' C, D_1, D_2, D_{20}, G, H_{11}, H_{12}, H_{13}, S, W, N, T, P, Q, R_4, R_5, U, V '

(*Page* 18, *Fig.* 14) — Substitute the figure given on page 2 for the existing figure.



14A 250 and 630 A

14B 1 000, 2 000 and 3 150 A

1. Insulator (top)
2. Insulator (bottom)
3. Stem
4. Washer (top end)
5. Washer (stem)
6. Connecting lug
7. Sealing washer (stem)
8. Sealing washer M type
9. General purpose washer
10. Gasket X
11. Gasket R
12. Washer in accordance with IS : 2016-1967†
13. Nut
14. Spring washer (Type B as per IS : 3063-1972‡)

Type of Stem	Bushing Rating kV/A	a Max	b Max	d_1	d_2	d_3	d_4	d_5
Aluminium	3.6/250	180	94	M12	28	39	[illegible]	75
	3.6/630	290	80	M30 × 2	56	56	112	110
	3.6/1 000	372	86	M42 × 3	70	70	125	125
	3.6/2 000	402	92	M48 × 3	[illegible]	90	150	145
	3.6/3 150	—	—	—	—	—	—	—
Copper	3.6/250	180	94	M12	28	39	[illegible]	75
	3.6/630	210	110	M20	46	45	85	90
	3.6/1 000	294	80	M30 × 2	56	56	112	110
	3.6/2 000	372	86	M42 × 3	70	70	125	125
	3.6/3 150	404	92	M48 × 3	90	90	150	145

*4 to 8 up to and including 1 000A, 6 to 10 above 1 000A.

†Specification for plain washers (*first revision*).

‡Specification for single coil rectangular section spring washers for bolts, nuts and screws (*first revision*).

FIG. 14 ASSEMBLY OF BUSHING

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 3 MARCH 1989
TO
IS : 3347 (Part 2/Sec 2) - 1979 DIMENSIONS FOR PORCELAIN TRANSFORMER BUSHINGS FOR USE IN NORMAL AND LIGHTLY POLLUTED ATMOSPHERES

PART 2 3·6 kV BUSHINGS

Section 2 Metal Parts

(First Revision)

(*First cover, page:* 1 *and* 3, *title*) — Substitute the following for the existing title:

'*Indian Standard*

DIMENSIONS FOR PORCELAIN TRANSFORMER BUSHINGS FOR USE IN LIGHTLY POLLUTED ATMOSPHERES

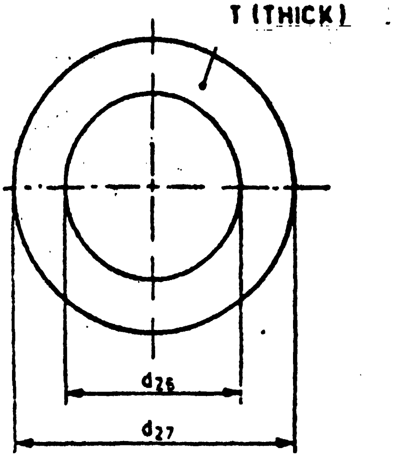
PART 2 3·6 kV BUSHINGS

Section 2 Metal Parts

(First Revision)'

(*Page* 3, *clause* 0.3, *first and second lines*)
(*Page* 5, *clause* 1.1, *third line*)
} Delete the words 'normal and'.

(*Page* 15, *Fig.* 12) — Substitute the figure given on page 2 for the existing figure.



All dimensions in millimetres.

TYPE	RATING kV/A	BUSHING WITH ALUMINIUM STEM			BUSHING WITH COPPER STEM		
		d_{26}	d_{27}	T	d_{26}	d_{27}	T
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
R	3·6/250	45	70	3	28	50	3
R	3·6/630	56	90	3	40	70	3
R	3·6/1 000	70	104	3	45	70	3
R	3·6/2 000	90	125	3	70	104	3
R	3·6/3 150	—	—	—	90	125	3
X	3·6/250	40	70	3	25	50	3
X	3·6/630	45	70	3	45	70	3
X	3·6/1 000	63	90	3	56	90	3
X	3·6/2 000	80	110	3	70	104	3
X	3·6/3 150	—	—	—	90	125	3

FIG. 12 GASKET (*R* AND *X* TYPE)

(ETDC 3)

Reprography Unit, BIS, New Delhi, India

Indian Standard

DIMENSIONS FOR PORCELAIN TRANSFORMER BUSHINGS FOR USE IN NORMAL AND LIGHTLY POLLUTED ATMOSPHERES

PART II 3·6 kV BUSHINGS

Section 2 Metal Parts

(First Revision)

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(*Continued on page* 2)

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(*Continued from page* 1)

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Indian Standard

DIMENSIONS FOR PORCELAIN TRANSFORMER BUSHINGS FOR USE IN NORMAL AND LIGHTLY POLLUTED ATMOSPHERES

PART II 3·6 kV BUSHINGS

Section 2 Metal Parts

(First Revision)

0. FOREWORD

0.1 This Indian Standard (Part II/Sec 2) (First Revision) was adopted by the Indian Standards Institution on 29 August 1979, after the draft finalized by the Electrical Insulators and Accessories Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard was first issued in 1967. This revision has been undertaken with a view to including details of fixing arrangements of jumpers at oil end. This revision also incorporates amendment issued to the original standard.

0.3 The dimensions of porcelain parts of the bushings for use in normal and lightly polluted atmospheres of 3·6 kV are covered in IS : 3347 (Part II/Sec 1)-1979*. This section (Section 2), which is a necessary adjunct to Section 1, lays down the dimensions of the metal parts and accessories of the bushings to go with the porcelain parts specified in Section 1. The materials of the metal parts have also been specified.

0.4 The need for changing over to aluminium for the metal parts of bushings has been fully recognized. This section, therefore, includes complete sets of dimensions of parts using aluminium as well as copper. Dimensions for copper parts have been given to ensure a smooth change-over to aluminium. These are expected to be deleted in due course.

0.5 In this section, the dimensions of metal parts have been formulated in such a way that the porcelain parts available in Section 1 of this standard may be used both for aluminium as well as copper metal parts. Suitable references are given to indicate the appropriate porcelain part at each place.

---

*Dimensions for porcelain transformer bushings for use in normal and lightly polluted atmospheres : Part II 3·6 kV bushings, Section 1 Porcelain parts (*first revision*).

0.6 For a current rating of 3 150A, no aluminium metal parts have been specified. In this case the use of copper metal parts only is recommended.

0.7 The dimensions of bushings for other voltages are covered by the following parts of this standard:

Part I Up to and including 1 kV
  Section 1 Porcelain parts
  Section 2 Metal parts
Part III 12 and 17·5 kV Bushings
  Section 1 Porcelain parts
  Section 2 Metal parts
Part IV 24 kV Bushings
  Section 1 Porcelain parts
  Section 2 Metal parts
Part V 36 kV Bushings
  Section 1 Porcelain parts
  Section 2 Metal parts
Part VI 72 5 kV Bushings
  Section 1 Porcelain parts
  Section 2 Metal parts (*under preparation*)
Part VII 123 kV Bushings
  Section 1 Porcelain parts
  Section 2 Metal parts (*under preparation*)

0.8 The dimensions for porcelain transformer bushings for use in heavily polluted atmospheres are covered by IS : 8603 (Parts I to III)-1977*. The metal parts covered by this section may be used for bushings covered by IS : 8603 (Parts I to III)-1977*.

0.9 In the preparation of this standard, assistance has been derived from DIN 42539 (1968) ' Indoor and outdoor transformers, bushings voltage rating 3 kV for 250 to 3 150A ', issued by Deutscher Normenausschuss.

0.10 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

*Dimensions for porcelain transformer bushings for use in heavily polluted atmospheres:

Part I 12 and 17·5 kV bushings,
Part II 24 kV bushings, and
Part III 36 kV bushings.

†Rules for rounding off numerical values (*revised*).

1. SCOPE

1.1 This standard (Part II/Sec 2) lays down the dimensions and materials of metal parts and accessories of 3·6 kV rating bushings used with transformers for use in normal and lightly polluted atmospheres.

2. MATERIALS

2.1 The materials of various parts shall conform to the relevant Indian Standards specified below:

Metal Part or Accessory	*For Bushing with Copper Stem*	*For Bushing with Aluminium Stem*
Hexagonal nut (4.1)	Brass conforming to 2.2 of IS : 1364-1967*	Aluminium alloy conforming to 2.2 of IS : 1364-1967*
Stem (3.2)	Copper rods conforming to IS : 613-1964†	Aluminium conforming to electrical grade of IS : 4026-1969‡ or any other suitable aluminium alloy to be agreed between manufacturer and the purchaser
Nut (3.3)	Brass conforming to IS : 3488-1966§ or Grade 2 of IS : 292-1961‖ or IS : 319-1974¶	Aluminium conforming to electrical grade of IS : 4026-1969‡ or any other suitable aluminium alloy to be agreed between manufacturer and the purchaser
Washer (top end) (3.5)	Brass conforming to Type I of IS : 319-1974¶ or IS : 3488-1966§	— do —
Washer (stem) (3.6)	Brass conforming to Type I of IS : 319-1974¶ or IS : 3488-1966§	— do —

---

*Specification for precision and semi-precision hexagon bolts, screws, nuts and lock nuts (diameter range 6 to 39 mm) (*first revision*).

†Specification for copper rods for electrical purposes (*revised*).

‡Specification for aluminium ingots (EC grade) (*first revision*).

§Specification for brass bars, rods and sections suitable for forging.

‖Specification for brass ingots and castings (*revised*).

¶Specification for free-cutting brass bars, rods and sections (*third revision*).

Metal Part or Accessory	*For Bushing with Copper Stem*	*For Bushing with Aluminium Stem*
Connecting lug (3.8)	Copper suitable for forging and having conductivity $>$ 45 m/Ω mm^2 and tensile strength $>$ 37 kg/mm^2	Aluminium alloy conforming to A-6-M designation of IS : 617-1975[*] or any other suitable aluminium alloy to be agreed between the manufacturer and the purchaser

NOTE — For 250A rated bushing, brass conforming to IS : 3488-1966[†] may be used for manufacture of stem in place of copper rod.

2.2 The material used for sealing washers for general purposes (four types *M, N, P* and *Q*) shall be synthetic rubber or synthetic rubber bonded cork. The material used for sealing washers for stem shall be synthetic rubber (acrylic nitrile rubber) having hardness of 70 ± 5 IRHD. Where synthetic insulating transformer coolant is used, the material of the washer shall be silicone rubber or any other resilient material compatible with the transformer coolant.

3. DIMENSIONS

3.1 The hexagonal nuts used shall conform to IS : 1364-1967[‡] and IS : 3138-1966[§]. The threads shall be in accordance with IS : 1362-1962[||] and IS : 3139-1966[¶].

3.2 Stem

3.2.1 *For 3·6/250 and 630 Rating (Copper Stem) and for 3·6/250 Rating (Aluminium Stem)* — The dimensions shall conform to Fig. 1.

3.2.2 *For 3·6/1 000, 2 000 and 3 150 Rating (Copper Stem) and for 3·6/630, 1 000 and 2 000 Rating (Aluminium Stem)* — The dimensions shall conform to Fig. 2.

---

[*] Specification for aluminium and aluminium alloy ingots and castings for general engineering purposes (*second revision*).

[†] Specification for brass bars, rods and sections suitable for forging.

[‡] Specification for precision and semi-precision hexagon bolts, screws, nuts and lock nuts diameter range 6 to 39 mm (*first revision*).

[§] Specification for hexagonal bolts and nuts (M 42 to M 150).

[||] Dimensions for screw threads for general purposes (diameter range 1·6 to 39 mm) (*revised*).

[¶] Dimensions for screw threads for bolts and nuts (diameter range M 42 to M 150).

3.3 Nut

3.3.1 *For 3·6/250 and 630 Rating (Copper Stem) and for 3·6/250 Rating (Aluminium Stem)* — The dimensions shall conform to Fig. 3.

3.3.2 *For 3·6/1 000 Rating (Copper Stem) and 3·6/630 Rating (Aluminium Stem)* — The dimensions shall conform to Fig. 4.

3.3.3 *For 3·6/2 000 and 3 150 Rating (Copper Stem) and for 3·6/1 000, 2 000 Rating (Aluminium Stem)* — The dimensions shall conform to Fig. 5.

3.4 Stem Subassembly

3.4.1 *For 3·6/250 and 630 Rating (Copper Stem) and for 3·6/250 and 630 Rating (Copper Stem) and for 3·6/250 Rating (Aluminium Stem)* — The subassembly shall conform to Fig. 6.

3.4.2 *For 3·6/1 000, 2 000 and 3 150 Rating (Copper Stem) and 3·6/630, 1 000 and 2 000 Rating (Aluminium Stem)* — The subassembly shall conform to Fig. 7.

3.5 Washer (Top End) — The washer (top end) shall conform to Fig. 8.

3.6 Washer (Stem) — The washer (stem) shall conform to Fig. 9.

3.7 Sealing Washers

3.7.1 *For Stem* — The sealing washer for stem shall conform to Fig. 10.

3.7.2 *General Purpose (four Types M, N, O and P)* — The general purposes sealing washer shall be in accordance with Fig. 11.

3.7.3 *Gasket (R and X Type)* — The gasket shall conform to Fig. 12.

3.8 Connecting Lug — The connecting lug shall conform to Fig. 13.

4. TOLERANCES

4.1 Unless otherwise specified allowable tolerance on a dimension of any machined metal part shall be in accordance with medium class of IS : 2102-1969*.

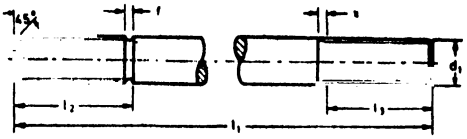
4.2 Unless otherwise specified, allowable tolerance on a dimension of any forged or cast metal part shall be in accordance with coarse class of IS : 2102-1969*.

5. ASSEMBLY

5.1 The assembly of the bushing is shown in Fig. 14.

---

*Specification for allowable deviations for dimensions without specified tolerances (*first revision*).



All dimensions in millimetres.

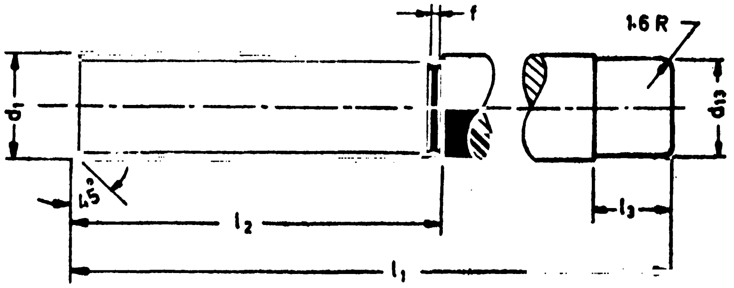
NOTE — The chamfered ends shall be in accordance with IS : 1368-1967* and *f* and *x* shall be in accordance with IS : 1369-1975†.

TYPE OF STEM	BUSHING RATING kV/A	CORRESPONDING RATING OF PORCELAIN PART OF SEC 1, kV/A	d_1	l_1	l_2	l_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Copper and aluminium	3·6/250	3·6/250	*M*12	272	71	38·5
Copper	3·6/630	3·6/630	*M*20	318	100	53

*Dimensions of ends of bolts and screws (*first revision*).

†Dimensions of screw threads run out and undercuts (*first revision*).

FIG. 1 STEM FOR 250 AND 630A RATING



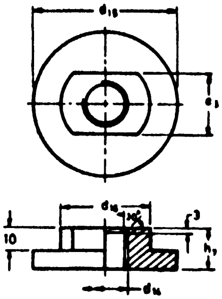
All dimensions in millimetres.

TYPE OF STEM	BUSHING RATING kV/A	CORRESPONDING RATING OF PORCELAIN PART OF SEC 1, kV/A	d_1	d_1, e_8	l_1	l_2	l_3
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Aluminium	3·6/630	3·6/1 000	*M*30×2	29	300	110	24
Copper	3·6/1 000	3·6/1 000	*M*30×2	29	300	110	24
Aluminium	3·6/1 000	3·6/2 000	*M*42×3	41	340	140	29
Copper	3·6/2 000	3·6/2 000	*M*42×3	41	340	140	29
Aluminium	3·6/2 000	3·6/3 150	*M*48×3	47	353	148	34
Copper	3·6/3 150	3·6/3 150	*M*48×3	47	353	148	34

NOTE — *f* and *x* shall be in accordance with IS : 1369-1975*.

*Dimensions of screw threads run out and undercuts (*first revision*).

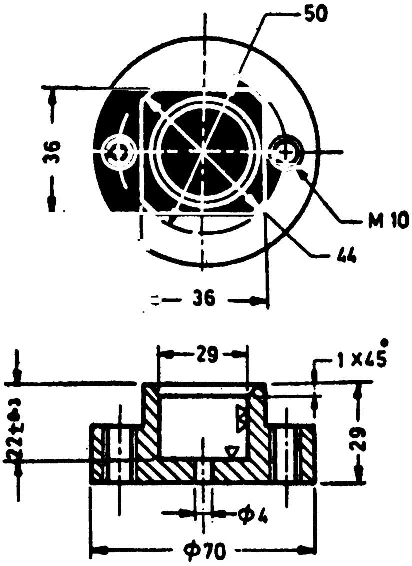
FIG. 2 STEM FOR 1 000, 2 000 AND 3 150A RATING



All dimensions in millimetres.

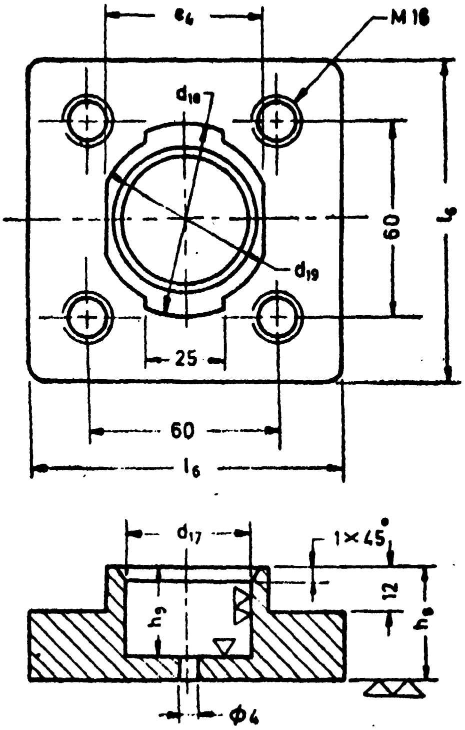
TYPE OF STEM	BUSHING RATING kV/A	CORRESPONDING RATING OF PORCELAIN PART OF SEC 1, kV/A	d_{14}	d_{15}	d_{16} *Max*	h_7	l_8 *Max*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Aluminium and Copper	3·6/250	3·6/250	*M*12	45	24	15	19
Copper	3·6/630	3·6/630	*M*20	63	39	18	27

FIG. 3 NUT FOR 250 AND 630A RATING



All dimensions in millimetres.

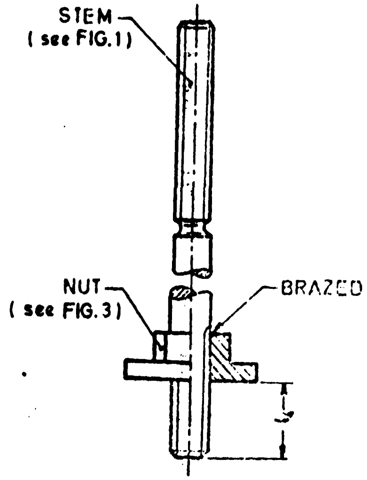
FIG. 4 NUT FOR 630 AND 1 000A RATING



All dimensions in millimetres.

Type of Stem	Bushing Rating kV/A	Corresponding Rating of Porcelain Part of Sec 1, kV/A	d_{17} H_8	d_{18} Max	d_{19} Max	h_8	h_9 ±0·3	d_4 Max	l_6
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Aluminium	3·6/1 000	3·6/2 000	41	62	56	34	27	50	100
Copper	3·6/2 000	3·6/2 000	41	62	56	34	27	50	100
Aluminium	3·6/2 000	3·6/3 150	47	78	66	39	32	60	110
Copper	3·6/3 150	3·6/3 150	47	78	66	39	32	60	110

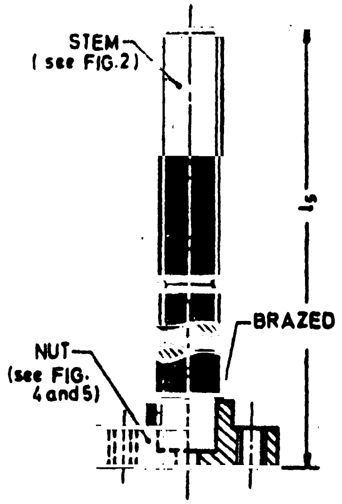
FIG. 5 NUT FOR 2 000 AND 3 150A RATING



All dimensions in millimetres.

TYPE OF STEM	BUSHING RATING kV/A	CORRESPONDING RATING OF PORCELAIN PART OF SEC 1, kV/A	$l_4 \pm 0.3$	STEM	NUT
(1)	(2)	(3)	(4)	(5)	(6)
Copper and Aluminium	3·6/250	3·6/250	25	*See* Fig. 1	*See* Fig. 3
Copper	3·6/630	3·6/630	37	*See* Fig. 1	*See* Fig. 3

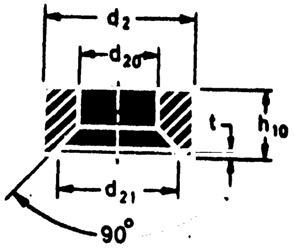
FIG. 6 STEM SUBASSEMBLY FOR 250 AND 630A RATING



All dimensions in millimetres.

Type of Stem	Bushing Rating kV/A	Corresponding Rating of Porcelain Part of Sec 1, kV/A	l_s	Stem	Nut
(1)	(2)	(3)	(4)	(5)	(6)
Aluminium	3·6/630	3·6/1 000	307	*See* Fig. 2	*See* Fig. 4
Copper	3·6/1 000	3·6/1 000	307	*See* Fig. 2	*See* Fig. 4
Aluminium	3·6/1 000	3·6/2 000	347	*See* Fig. 2	*See* Fig. 5
Copper	3·6/2 000	3·6/2 000	347	*See* Fig. 2	*See* Fig. 5
Aluminium	3·6/2 000	3·6/3 150	360	*See* Fig. 2	*See* Fig. 5
Copper	3·6/3 150	3·6/3 150	360	*See* Fig. 2	*See* Fig. 5

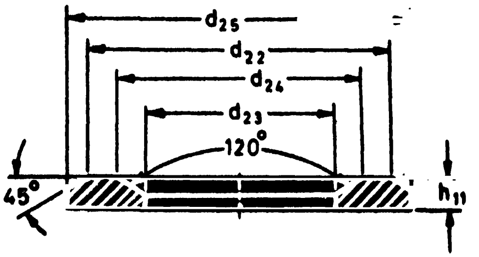
Fig. 7 Stem Subassembly for 630, 1 000, 2 000 and 3 150A Rating



All dimensions in millimetres.

Bushing Rating kV/A	Bushing with Aluminium Stem					Bushing with Copper Stem				
	d_2	d_{20}	d_{21}	h_{10}	t	d_2	d_{20}	d_{21}	h_{10}	t
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
3·6/250	28	13	22	20	1·5	28	13	22	20	1·5
3·6/630	56	31	45	24	3	40	21	32	22	2
3·6/1 000	70	43	59	26	3	56	31	45	24	3
3·6/2 000	80	50	65	26	3	70	43	59	26	3
3·6/3 150	—	—	—	—	—	80	50	65	26	3

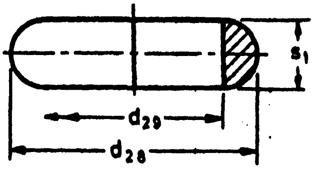
Fig. 8 Washer (Top End)



All dimensions in millimetres.

Bushing Rating kV/A	Bushing with Aluminium Stem					Bushing with Copper Stem				
	d_{22}	d_{23}	d_{24}	d_{25}	h_{11}	d_{22}	d_{23}	d_{24}	d_{25}	h_{11}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
3·6/250	28	13	22	32	4	28	13	22	32	4
3·6/630	56	31	45	65	6	40	21	32	47	5
3·6/1000	70	43	59	80	7	56	31	45	65	6
3·6/2000	80	50	65	100	8	70	43	59	80	7
3·6/3150	—	—	—	—	—	80	50	65	100	8

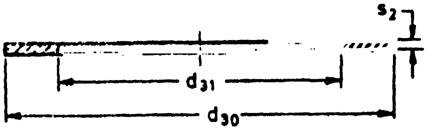
Fig. 9 Washer (Stem)



All dimensions in millimetres.

Bushing Rating kV/A	Bushing with Aluminium Stem			Bushing with Copper Stem		
	d_{28} ± 0·3	d_{29}	S_1	d_{28} ± 0·3	d_{29}	S_1
(1)	(2)	(3)	(4)	(5)	(6)	(7)
3·6/250	22	12	11	22	12	11
3·6/630	45	30	16	32	20	13
3·6/1 000	59	42	18	45	30	16
3·6/2 000	65	48	18	59	42	18
3·6/3 150	—	—	—	65	48	18

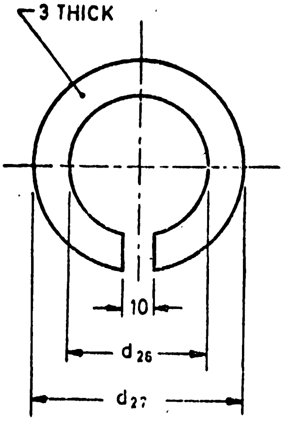
Fig. 10 Sealing Washer for Stem



All dimensions in millimetres.

Type	Bushing Rating kV/A	Bushings with Aluminium Stem			Bushing with Copper Stem		
		d_{30}	d_{31}	S_2	d_{30}	d_{31}	S_2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
M	3·6/250	32	14	2	32	14	2
M	3·6/630	65	32	2	47	22	2
M	3·6/1 000	80	45	2	65	32	2
M	3·6/2 000	100	50	2	80	45	2
M	3·6/3 150	—	—	—	90	50	2
N	3·6/250	60	38	4	60	38	4
N	3·6/630	90	56	4	70	45	4
N	3·6/1 000	104	70	4	100	56	4
N	3·6/2 000	125	90	4	104	70	4
N	3·6/3 150	—	—	—	125	90	4
P	3·6/250	45	25	2	45	25	2
P	3·6/630	—	—	—	63	40	2
O	3·6/250	60	38	2	60	38	2
O	3·6/630	—	—	—	70	45	2

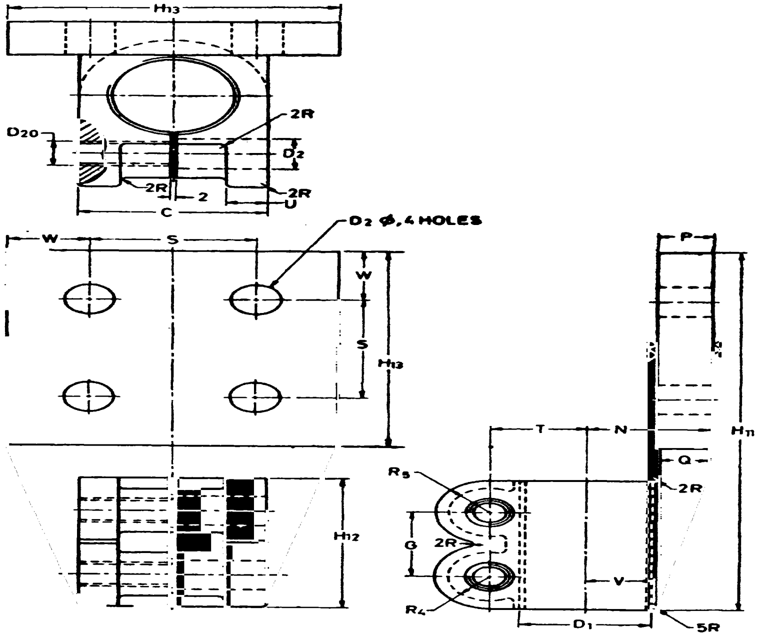
Fig. 11 General Purpose Washer (Four Types *M*, *N*, *O* and *P*)



All dimensions in millimetres.

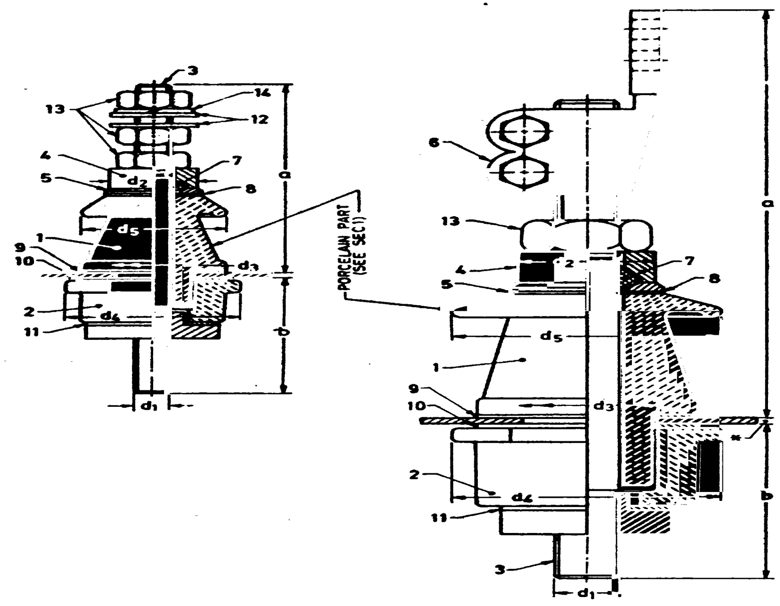
Type	Bushing Rating kV/A	Bushing with Aluminium Stem		Bushing with Copper Stem	
		d_{26}	d_{27}	d_{26}	d_{27}
(1)	(2)	(3)	(4)	(5)	(6)
R	3·6/630	45	70	—	—
R	3·6/1 000	63	90	45	70
R	3·6/2 000	80	110	63	90
R	3·6/3 150	—	—	80	110
X	3·6/630	56	90	—	—
X	3·6/1 000	70	104	56	90
X	3·6/2 000	90	125	70	104
X	3·6/3 150	—	—	90	125

Fig. 12 Gasket (*R* and *X* Type)



Bushing Rating kV/A	With Aluminium Stem																	
	c	d_1	d_2	d_{20}	g	h_{11}	h_{12}	h_{13}	s	w	n	t	p	q	r_4	r_5	u	v
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
3·6/1 000	58	M42×3	18	M16	40	195	80	100	50	25	45	35	20	18	15	20	15	26
3·6/2 000	68	M48×3	18	M16	40	220	80	120	60	30	45	35	20	18	15	20	15	30
	With Copper Stem																	
3·6/1 000	45	M30×2	14	M12	30	130	60	60	32	14	30	25	12	10	10	15	10	16
3·6/2 000	58	M42×3	18	M16	40	195	80	100	50	25	45	35	20	18	15	20	15	26
3·6/3 150	68	M48×3	18	M16	40	220	80	120	60	30	45	35	20	18	15	20	15	30

Fig. 13 Connecting Lug



14A 250A and 630A

14B 1 000A, 2 000A and 3 150A

1. Insulator top
2. Insulator bottom
3. Stem
4. Washer (top end)
5. Washer (stem)
6. Connecting lug
7. Sealing washer (stem)
8. Sealing washer *M* type
9. General purpose washer
10. Gasket *X*
11. Gasket *R*
12. Washer in accordance with IS : 2016-1967†
13. Nut
14. Spring washer (Type *B* as per IS : 3063-1972‡)

*4 to 8 up to and including 1 000A, 6 to 10 above 1 000A.
†Specification for plain washers (*first revision*).
‡Specification for single coil rectangular section spring washers for bolts, nuts and screws (*first revision*).

TYPE OF STEM	BUSHING RATING kV/A	*a* *Max*	*b* *Max*	d_1	d_2	d_3	d_4	d_5
Aluminium	3·6/250	180	94	*M*12	28	39	70	75
	3·6/630	290	80	*M*30 × 2	56	56	110	110
	3·6/1 000	372	86	*M*42 × 3	70	70	125	125
	3·6/2 000	402	92	*M*48 × 3	80	90	150	145
	3·6/3 150	—	—	—	—	—	—	—
Copper	3·6/250	180	94	*M*12	28	39	70	75
	3·6/630	210	110	*M*20	46	45	85	90
	3·6/1 000	294	80	*M*30 × 2	56	56	110	110
	3·6/2 000	372	86	*M*42 × 3	70	70	125	125
	3·6/3 150	404	92	*M*48 × 3	90	90	150	145

FIG. 14 ASSEMBLY OF BUSHING

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117/418 B, Sarvodaya Nagar, KANPUR 208005	21 68 76
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